#2

OIPE

RAW SEQUENCE LISTING DATE: 10/16/2001 PATENT APPLICATION: US/09/965,175 TIME: 15:38:11

Input Set : A:\PhzO.ST25.txt

```
3 <110> APPLICANT: Thomashow, Linda S.
             Delaney, Shannon M.
             Mavrodi, Dmitri V.
      5
             Weller, David M.
     8 <120> TITLE OF INVENTION: Sequences Encoding PhzO and Methods
     10 <130> FILE REFERENCE: 0229.99
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/965,175 pt
C--> 12 <141> CURRENT FILING DATE: 2001-09-27
    12 <150> PRIOR APPLICATION NUMBER: US 60/236,634
    13 <151> PRIOR FILING DATE: 2000-09-29
    15 <160> NUMBER OF SEQ ID NOS: 11
                                                              ENTERED
    17 <170> SOFTWARE: PatentIn version 3.1
    19 <210> SEQ ID NO: 1
     20 <211> LENGTH: 2869
     21 <212> TYPE: DNA
     22 <213> ORGANISM: Pseudomonas chlororaphis
    24 <220> FEATURE:
     25 <221> NAME/KEY: CDS
     26 <222> LOCATION: (89)..(1564)
     27 <223> OTHER INFORMATION:
     30 <220> FEATURE:
     31 <221> NAME/KEY: gene
     32 <222> LOCATION: (76)..(1564)
     33 <223> OTHER INFORMATION:
     36 <220> FEATURE:
     37 <221> NAME/KEY: RBS
     38 <222> LOCATION: (76)..(81)
     39 <223> OTHER INFORMATION:
     42 <400> SEQUENCE: 1
     43 togactotag aacgttgtcc ttgacccagc gatagacatc gggccagaac ctacataaac
                                                                               60
     45 aaagtcagac attactgagg ctgctacc atg cta gat ttt caa aac aag cgt
                                                                              112
                                       Met Leu Asp Phe Gln Asn Lys Arg
     47
     49 aaa tat ctg aaa agt gca gaa tcc ttc aaa gct tca ctg cgt gat aac
                                                                              160
     50 Lys Tyr Leu Lys Ser Ala Glu Ser Phe Lys Ala Ser Leu Arg Asp Asn
                                15
                                                                              208
     53 cgc act gtt att tat caa ggc caa gtt gtt gag gat gtg act aca cac
     54 Arg Thr Val Ile Tyr Gln Gly Gln Val Val Glu Asp Val Thr Thr His
     57 ttc tct acg gct gga ggc ata tcg caa gtt gca gaa atc tac gaa gaa
                                                                              256
     58 Phe Ser Thr Ala Gly Gly Ile Ser Gln Val Ala Glu Ile Tyr Glu Glu
     61 caa ttc agc ggt gaa cac gac gac att ctg act tac gta cgc ccc gac
                                                                              304
     62 Gln Phe Ser Gly Glu His Asp Asp Ile Leu Thr Tyr Val Arg Pro Asp
     65 ggt tac ctg gcc tct tct gcc tat atg ccc cct aga aac aaa gaa gac
                                                                              352
    66 Gly Tyr Leu Ala Ser Ser Ala Tyr Met Pro Pro Arg Asn Lys Glu Asp
```

DATE: 10/16/2001 RAW SEQUENCE LISTING TIME: 15:38:11 PATENT APPLICATION: US/09/965,175

Input Set : A:\PhzO.ST25.txt
Output Set: N:\CRF3\10162001\I965175.raw

67	75			8	30					85				
69 ttg gcg	tcg cg	a cgc	cgc g	ca a	itc .	atg	tac	gtc	tcg	caa	aaa	acc	tgg	400
70 Leu Ala														
71 90			9	5					100					
73 ggc acc	cac tg	c cgt	aac c	tg g	jac .	atg	atc	gcc	agc	ttc	acc	gtc	ggc	448
74 Gly Thr	His Cy	s Arg	Asn L	eu A	Asp 1	Met	Ile	Ala	Ser	Phe	Thr	Val	Gly	
75 105			110					115					120	
77 atg atg	gga ta	t ctg	ccg a	ca t	tc.	agg	aaa	aaa	tgc	cct	gag	tac	gca	496
78 Met Met	Gly Ty	r Leu	Pro T	hr P	he !	Arg	Lys	Lys	Cys	Pro	Glu	Tyr	Ala	
79		125					130					135		
81 gaa aac	att ac	c gaa	tac c	at g	jac	tac	gcc	gag	cgc	aac	agc	ctg	tat	544
82 Glu Asn	Ile Th	r Glu	Tyr H	lis A	sp '	Tyr	Ala	Glu	Arg	Asn	Ser	Leu	Tyr	
83	14	0				145					150			
85 ttg tct	gag ac	c att	gtt g	at c	cca	cag	ggc	tat	cgg	gca	cgt	acc	cac	592
86 Leu Ser	Glu Th	r Ile '	Val A	sp F	Pro	Gln	Gly	Tyr	Arg	Ala	Arg	Thr	His	
87	155			1	160					165				
89 ggc acc	gac ct	c aac	ctg c	cg c	ccg	ccc	gat	cgt	gcc	gtg	atg	agg	atc	640
90 Gly Thr	Asp Le	u Asn	Leu P	ro F	ro	Pro	Asp	Arg	Ala	Val	Met	Arg	Ile	
91 170			1	75					180					
93 aac aag	cag aa	c gcc	gag g	gc a	tc	tgg	atc	agc	ggc	gtc	aaa	ggc	gtg	688
94 Asn Lys	Gln As	n Ala	Glu G	ly I	le '	Trp	Ile	Ser	Gly	Val	Lys	Gly	Val	
95 185			190					195					200	
97 ggc acg	gca gca	a ccg	cag t	cc a	at	gaa	ata	ttt	gtt	ggc	agc	ttg	ttc	736
98 Gly Thr	Ala Ala	a Pro	Gln S	er A	Asn (Glu	Ile	Phe	Val	Gly	Ser	Leu	Phe	
99		205					210					215		
101 ccc gc	a gcg c		gag	tca	ttc	tgg		tac	gto	cct	gtc		gcg	784
		cc gag					gct					gat		784
101 ccc gc	a Ala P	cc gag					gct					gat Asp		784
101 ccc gc 102 Pro Al	a Ala Pi 2	cc gag ro Glu 20	Glu	Ser	Phe	Trp 225	gct	Tyr	Val	Pro	Val 230	gat Asp	Ala	784 832
101 ccc gc 102 Pro Al 103	a Ala P: 2: g gtg a	cc gag ro Glu 20 ag att	Glu ttt	Ser tgc	Phe cga	Trp 225 gag	gct Ala att	Tyr gtc	Val	Pro	Val 230 cct	gat Asp	Ala gcc	
101 ccc gc 102 Pro Al 103 105 ccg gg	a Ala P: 2: g gtg a	cc gag ro Glu 20 ag att	Glu ttt	Ser tgc	Phe cga	Trp 225 gag	gct Ala att	Tyr gtc	Val	Pro	Val 230 cct Pro	gat Asp	Ala gcc	
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl	a Ala P: 2: g gtg a y Val L: 235	cc gag ro Glu 20 ag att ys Ile	Glu ttt Phe	Ser tgc Cys	Phe cga Arg 240	Trp 225 gag Glu	gct Ala att	Tyr gtc Val	Val tcc Ser	cag Gln 245	Val 230 cct Pro	gat Asp cac His	Ala gcc Ala	
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107	a Ala P: 2: g gtg a: y Val L: 235 c tat g:	cc gag ro Glu 20 ag att ys Ile	Glu ttt Phe ccg	Ser tgc Cys	Phe cga Arg 240 ata	Trp 225 gag Glu	gct Ala att Ile	Tyr gtc Val	tcc Ser	Pro cag Gln 245 gaa	Val 230 cct Pro	gat Asp cac His	Ala gcc Ala gcg	832
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc	a Ala P: 2: g gtg aa y Val L: 235 c tat ga a Tyr A	cc gag ro Glu 20 ag att ys Ile	Glu ttt Phe ccg	Ser tgc Cys	Phe cga Arg 240 ata	Trp 225 gag Glu	gct Ala att Ile	Tyr gtc Val	tcc Ser	cag Gln 245 gaa	Val 230 cct Pro	gat Asp cac His	Ala gcc Ala gcg	832
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al	a Ala P: 2: g gtg a: y Val L: 235 c tat g: a Tyr A: 0	cc gag ro Glu 20 ag att ys Ile ac cac sp His	Glu ttt Phe ccg Pro	tgc Cys ctc Leu 255	Phe cga Arg 240 ata Ile	Trp 225 gag Glu tcc Ser	gct Ala att Ile aaa Lys	gtc Val ggt	Val tcc Ser gaa Glu 260	cag Gln 245 gaa	Val 230 cct Pro gcc	gat Asp cac His gag	Ala gcc Ala gcg Ala	832
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25	a Ala P. 2 g gtg a y Val L 235 c tat g a Tyr A 0 g gta t	cc gag ro Glu 20 ag att ys Ile ac cac sp His	Glu ttt Phe ccg Pro	tgc Cys ctc Leu 255 gtg	Phe cga Arg 240 ata Ile	Trp 225 gag Glu tcc Ser att	gct Ala att Ile aaa Lys	Tyr gtc Val ggt Gly	tcc Ser gaa Glu 260	Pro cag Gln 245 gaa Glu	Val 230 cct Pro gcc Ala	gat Asp cac His gag Glu	Ala gcc Ala gcg Ala	832
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt	a Ala P. 2 g gtg a y Val L 235 c tat g a Tyr A 0 g gta t	cc gag ro Glu 20 ag att ys Ile ac cac sp His	Glu ttt Phe ccg Pro	tgc Cys ctc Leu 255 gtg	Phe cga Arg 240 ata Ile	Trp 225 gag Glu tcc Ser att	gct Ala att Ile aaa Lys	Tyr gtc Val ggt Gly	Val tcc Ser gaa Glu 260 tgg	Pro cag Gln 245 gaa Glu	Val 230 cct Pro gcc Ala	gat Asp cac His gag Glu	Ala gcc Ala gcg Ala	832
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa	g gtg agy Val Ly 235 c tat ga Tyr Ago gta t P	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp	Glu ttt Phe ccg Pro aac Asn 270 ctg	tgc Cys ctc Leu 255 gtg Val	Phe cga Arg 240 ata Ile ttc Phe agc	Trp 225 gag Glu tcc ser att Ile	gct Ala att Ile aaaa Lys cca Pro	Tyr gtc Val ggt Gly cgc Arg 275	val tcc Ser gaa Glu 260 tgg Trp	cag Gln 245 gaa Glu cga Arg	Val 230 cct Pro gcc Ala atc	gat Asp cac His gag Glu atg	gcc Ala gcg Ala gcg Ala 280 acc	832
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265	g gtg agy Val Ly 235 c tat ga Tyr Ago gta t P	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp	Glu ttt Phe ccg Pro aac Asn 270 ctg	tgc Cys ctc Leu 255 gtg Val	Phe cga Arg 240 ata Ile ttc Phe agc	Trp 225 gag Glu tcc ser att Ile	gct Ala att Ile aaaa Lys cca Pro	Tyr gtc Val ggt Gly cgc Arg 275	val tcc Ser gaa Glu 260 tgg Trp	cag Gln 245 gaa Glu cga Arg	Val 230 cct Pro gcc Ala atc	gat Asp cac His gag Glu atg	gcc Ala gcg Ala gcg Ala 280 acc	832 880 928
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa	g gtg agy Val Ly 235 c tat ga Tyr Ago gta t P	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu	tgc Cys ctc Leu 255 gtg Val	Phe cga Arg 240 ata Ile ttc Phe agc	Trp 225 gag Glu tcc ser att Ile	gct Ala att Ile aaaa Lys cca Pro	Tyr gtc Val ggt Gly cgc Arg 275 ttc	val tcc Ser gaa Glu 260 tgg Trp	cag Gln 245 gaa Glu cga Arg	Val 230 cct Pro gcc Ala atc	gat Asp cac His gag Glu atg	gcc Ala gcg Ala gcg Ala 280 acc Thr	832 880 928
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta	g gtg acy Val L 235 c tat ga Tyr A 0 g gta t l Val P c gtg c n Val P	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp cg gaa ro Glu 285 at tgg	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac	tgc Cys ctc Leu 255 gtg Val gcc Ala	Phe cga Arg 240 ata Ile ttc Phe agc ser ctc	Trp 225 gag Glu tcc ser att Ile gcc Ala	att lle aaa Lys cca Pro	gtc Val ggt Gly cgc Arg 275 ttc Phe	Value too Ser gaa Glu 260 tgg Trp	cag Gln 245 gaa Glu cga Arg Arg	Val 230 cct Pro gcc Ala atc Ile ctg Leu	gat Asp cac His gag Glu atg Trp 295	gcc Ala gcg Ala gcg Ala 280 acc Thr	832 880 928
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119	g gtg acy Val L 235 c tat ga Tyr A 0 g gta t l Val P c gtg c n Val P	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp cg gaa ro Glu 285 at tgg	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac	tgc Cys ctc Leu 255 gtg Val gcc Ala	Phe cga Arg 240 ata Ile ttc Phe agc ser ctc	Trp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val	att Ile aaa Lys cca Pro	gtc Val ggt Gly cgc Arg 275 ttc Phe	Value too Ser gaa Glu 260 tgg Trp	cag Gln 245 gaa Glu cga Arg Arg	Val 230 cct Pro gcc Ala atc Ile ctg Leu	gat Asp cac His gag Glu atg Trp 295	gcc Ala gcg Ala gcg Ala 280 acc Thr	832 880 928 976
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta 122 Ser Ty 123	a Ala P. 2 g gtg a. y Val L. 235 c tat g. a Tyr A. 0 g gta t l Val P. c gtg c. r Ser H 3	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp cg gaa ro Glu 285 at tgg is Trp	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac Tyr	tgc Cys ctc Leu 255 gtg Val gcc Ala acg	Phe cga Arg 240 ata Ile ttc Phe agc ser ctc Leu	Trpp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val 305	att lle aaa Lys cca Pro Gly 290 cgc	gtc Val ggt Gly cgc Arg 275 ttc Phe	Value too Ser gaa Glu 260 trp Trp tto Phe	cag Gln 245 gaa Glu cga Arg Arg	Val 230 cct Pro gcc Ala atc Ile ctg Leu	gat Asp cac His gag Glu atg Met tgg Trp 295	gcc Ala gcg Ala gcg Ala 280 acc Thr	832 880 928 976
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta 122 Ser Ty 123 125 ctg ta	a Ala P. 2 g gtg a. y Val L. 235 c tat g. a Tyr A. 0 g gta t. l Val P. c gtg c. r Ser H 3 t gcc g.	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp cg gaa ro Glu 285 at tgg is Trp 00 ga ctg	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac Tyr	tgc Cys ctc Leu 255 gtg Val gcc Ala acg Thr	Phe cga Arg 240 ata Ile ttc Phe agc ctc Leu gtg	Trpp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val 305 atc	gct Ala att Ile aaa Lys cca Pro Gly 290 cgc Arg	Tyr gtc Val ggt Gly Arg 275 ttc Phe ctg	Value too	cag Gln 245 gaa Glu cga Arg Arg agt	Val 230 cct Pro gcc Ala atc Ile ctg Leu aag Lys 310	gat Asp cac His gag Glu atg Met tgg Trp 295 gct Ala	gcc Ala gcg Ala gcg Ala 280 acc Thr	832 880 928 976
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta 122 Ser Ty 123 125 ctg ta 126 Leu Ty	g gtg acgregate Ala Property Al	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp cg gaa ro Glu 285 at tgg is Trp 00 ga ctg	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac Tyr	tgc Cys ctc Leu 255 gtg Val gcc Ala acg Thr	Phe cga Arg 240 ata Ile ttc Phe agc ctc Leu gtg Val	Trp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val 305 atc Ile	gct Ala att Ile aaa Lys cca Pro Gly 290 cgc Arg	Tyr gtc Val ggt Gly Arg 275 ttc Phe ctg	Value too	cag Gln 245 gaa Glu cga Arg Arg Ser acc	Val 230 cct Pro gcc Ala atc Ile ctg Lys 310 ggc Gly	gat Asp cac His gag Glu atg Met tgg Trp 295 gct Ala	gcc Ala gcg Ala gcg Ala 280 acc Thr	832 880 928 976
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta 122 Ser Ty 123 125 ctg ta 126 Leu Ty 127	a Ala P. 2 g gtg ac y Val L. 235 c tat ga a Tyr A 0 g gta t l Val P. c gtg c n Val P. c agc c r Ser H 3 gcc g r Ala G 315	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc gat he Asp cg Glu 285 at tgg is Trp 00 ga Leu	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac Tyr gcc Ala	tgc Cys ctc Leu 255 gtg Val gcc Ala acg Thr	Phe cga Arg 240 ata Ile ttc Phe agc ctc Leu gtg Val 320	Trp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val 305 atc Ile	gct Ala att Ile aaa Lys cca Pro Gly 290 cgc Arg	Tyr gtc Val ggt Gly Arg 275 ttc Phe ctg Glu gaa	Value too Ser gaa Glu 260 tgg Trp tto Phe gaa Glu gto Val	cag Gln 245 gaa Glu cga Arg agt Ser acc Thr	Val 230 cct Pro gcc Ala atc Ile ctg Leu aag Lys 310 ggc Gly	gat Asp cac His gag Glu atg Met tgg Trp 295 gct Ala	Ala gcg Ala gcg Ala 280 acc Thr gac Asp gag Glu	832 880 928 976 1024
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta 122 Ser Ty 123 125 ctg ta 126 Leu Ty 127 129 ggg at	a Ala P. 2 g gtg a. y Val L. 235 c tat g. a Tyr A. 0 g gta t. l Val P. c gtg c. n Val P. c agc c. T Ser H 3 gcc ggr Ala G. 315 t gcg g	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc Asp cg Glu 285 at tgg is Trp 00 ga Leu tg gtt	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac Tyr gcc Ala	ser tgc Cys ctc Leu 255 gtg Val gcc Ala acg Thr aag Lys cag	Phe cga Arg 240 ata Ile ttc Phe agc ctc Leu gtg Val 320 cgg	Trpp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val 305 atc Ile gtc	gct Ala att Ile aaa Lys cca Pro Gly 290 cgc Arg	Tyr gtc Val ggt Gly Arg 275 ttc Phe ctg Glu gaa Glu gaa	Value too Ser gaa Glu 260 tgg Trp tto Phe gaa Glu gto Val	cag Gln 245 gaa Glu cga Arg Ser acc Thr ctg	Val 230 cct Pro gcc Ala atc Ile ctg Leu aag Lys 310 ggc Gly	gat Asp cac His gag Glu atg Met tgg Trp 295 gct Ala	Ala gcg Ala gcg Ala 280 acc Thr gac Asp gag Glu	832 880 928 976
101 ccc gc 102 Pro Al 103 105 ccg gg 106 Pro Gl 107 109 agc gc 110 Ser Al 111 25 113 atg gt 114 Met Va 115 265 117 gcg aa 118 Ala As 119 121 tca ta 122 Ser Ty 123 125 ctg ta 126 Leu Ty 127	a Ala Pi g gtg ac y Val Li 235 c tat gc a Tyr A 0 g gta t 1 Val Pi c gtg c n Val Pi c agc c r Ser H 3 t gcc g g gta t gcg g c Ala G 315 t gcg g e Ala V	cc gag ro Glu 20 ag att ys Ile ac cac sp His tc Asp cg Glu 285 at tgg is Trp 00 ga Leu tg gtt	Glu ttt Phe ccg Pro aac Asn 270 ctg Leu tac Tyr gcc Ala cgc Arg	ser tgc Cys ctc Leu 255 gtg Val gcc Ala acg Thr aag Lys cag	Phe cga Arg 240 ata Ile ttc Phe agc ctc Leu gtg Val 320 cgg	Trpp 225 gag Glu tcc Ser att Ile gcc Ala gtg Val 305 atc Ile gtc	gct Ala att Ile aaa Lys cca Pro Gly 290 cgc Arg	Tyr gtc Val ggt Gly Arg 275 ttc Phe ctg Glu gaa Glu gaa	Value too Ser gaa Glu 260 tgg Trp tto Phe gaa Glu gto Val	cag Gln 245 gaa Glu cga Arg Arg agt acc Thr ctg 325 gtg	Val 230 cct Pro gcc Ala atc Ile ctg Leu aag Lys 310 ggc Gly	gat Asp cac His gag Glu atg Met tgg Trp 295 gct Ala	Ala gcg Ala gcg Ala 280 acc Thr gac Asp gag Glu	832 880 928 976 1024

RAW SEQUENCE LISTING DATE: 10/16/2001 PATENT APPLICATION: US/09/965,175 TIME: 15:38:11

Input Set : A:\PhzO.ST25.txt

133	gaa ata	ctc	aaa	aac	a t.o	tac	atc	acc	t.cc	atc	σaa	acσ	acc	σασ	ato	1168
	Glu Ile				-	_		-			-	_	_		_	
135	345				350					355					360	
	tcc gad															1216
	Ser Asp	Gly	Asp		Leu	Leu	Pro	Gly		Asn	Ala	Leu	Ala		Gly	
139				365					370					375		1064
	agg gtt		_	_			_		_							1264
142	Arg Val	. Pne	380	met	GIU	ьуѕ	Leu	385	Arg	vaı	ьeu	нтг	390	Leu	Arg	
	gag cto	r tac		cag	aac	t.t.a	atc		aσσ	ttc	aac	σασ		σac	tta	1312
	Glu Le															1012
147		395	•		-		400					405	-	-		
149	gcc gcc	gac	gcc	gcc	ttt	ggc	cag	aag	ttc	tcc	tgg	ttt	ctt	gac	acg	1360
150	Ala Ala	Asp	Ala	Ala	Phe	Gly	Gln	Lys	Phe	Ser	Trp	Phe	Leu	Asp	Thr	
151	410					415					420					
	caa ago			_												1408
	Gln Ser	Val	Gly	Ala	_	Glu	Lys	Asn	Leu		Met	Asn	Leu	Val		
	425				430		.			435					440	1456
	gac gtg Asp Val	_	-	_					_							1456
159	Asp val	. Ата	нта	445	GIU	птъ	361	1111	450	нта	цец	Val	FILE	455	Giu	
	cag cad	. aca	ata		gag	CCC	cta	cta		gat	aac	cta	at.a		σac	1504
	Gln His	_		-			_	_	_	_		_	_			
163			460					465	5	1			470		-	
165	tac gad	tac	cgc	gaa	agc	aca	agc	ctg	ata	cgc	cgc	cta	gtg	ggg	ctc	1552
	Tyr Asp		_	_	_											
167		475					480					485				
	aac gco		tag	acci	tgati	tgc (cgtgt	taggo	cg co	cgcg	caaco	c cti	cat	tcgt		1604
	Asn Ala	-														
171	490															1.004
	gccgact	-		-	-	-		_	_							1664 1724
	cttccaa				-		-		_			_				1784
	agccagg	_				_			_	_				-		1844
	tagcggt			_		_	_	_	_		_	_				1904
	gtccggg															1964
185	gccaac	gag	aaaa	caage	gc g	ctca	ccago	gc	cate	gcac	acag	ggcg	egc (cgcgc	ctttca	2024
187	ataccaa	agc	ccaa	gccc	cg to	cacaç	gccc	c cca	aagc	gcca	cct	ccag	gcc a	agcgt	ccagc	2084
189	atcggc	ctc	gccc	agaaq	gc g	ccago	ccata	a to	ggca	ccgt	agc	gacca	agc q	gaaag	gggtca	2144
	gcatggg															2204
	aacggag															2264
	tcgttgc															2324
	gccctgc															2384 2444
	gccgacc ttgcgca															2504
	gtggag															2564
	gcggtg															2624
	ctgcaag															2684
	ggtacg															2744

RAW SEQUENCE LISTING DATE: 10/16/2001 PATENT APPLICATION: US/09/965,175 TIME: 15:38:11

Input Set : A:\PhzO.ST25.txt

2869 215 tactt 215 tactt 2869 215 tactt 2869 215 tactt 2869 215 tactt 2869 216 NO: 2 219 <211> LENGTH: 491 220 <212> TYPE: PRT 221 <213> ORCANISM: PSEUDOMONIAS Chlororaphis 2 23 <400> SEQUENCE: 2 225 Met Leu Asp Phe Gln Asn Lys Arg Lys Tyr Leu Lys Ser Ala Glu Ser 162 1 5 10 10 10 10 10 10 10 10 10 10 10 10 10	211	tggg	gegea	agc 1	tgtto	cgago	ec g	gcgat	tege	c ct	ggcgg	gacc	aggg	gttt	ccc (gatci	tccccg	2804
218 < 210 > SEO ID NO: 2 219 < 211> LENGTH: 491 220 < 212> TYPE: PRT 221 < 213 > ORGANISM: PRE 221 < 213 > ORGANISM: PRE 222	213	cgc	ctgca	aca g	gcate	gataa	aa aa	accga	atcc	g tac	cctg	gcga	aato	egee	gga	tatg	gccgcc	2864
219 < 211> LENGTH: 491 220 < 212> TYPE: PRT 221 < 213> ORGANISM: Pseudomonas Chlororaphis 223 < 400> SEQUENCE: 2 225 Met Leu Asp Phe Gln Asn Lys Arg Lys Tyr Leu Lys Ser Ala Glu Ser 226 1	215	tact	tt					_										2869
219 < 211> LENGTH: 491 220 < 212> TYPE: PRT 221 < 213> ORGANISM: Pseudomonas Chlororaphis 223 < 400> SEQUENCE: 2 225 Met Leu Asp Phe Gln Asn Lys Arg Lys Tyr Leu Lys Ser Ala Glu Ser 226 1	218	<210)> SI	EQ II	ON C	: 2												
220																		
221 < <21.3 > ORCANISM: Pesudomonas chlororaphis		·																
223																		
225																		
10 15 16 17 18 18 19 19 19 19 19 19																		
229 Phe Lys Ala Ser Leu Arg Asp Asp Arg Arg Thr Val Ile Tyr Gln Gln Gln 230 230 241 Val Glu Asp Val Thr Thr His Phe Ser Thr Ala Gly Gly Ile Ser Asp Ser Gly Glu Asp Val Thr Thr His Phe Ser Gly Glu Gly Ile Ser Asp Ser Gly Glu Asp Asp Asp Ser Ser Asp Asp Ser Ser Ala Tyr Asp Asp Ser Gly Thr Thr Asp Asp			пеп	нар	FIIC		PPII	цуз	пта	цуз		Беа	цуз	JCI	AIG		501	
233 Val Val Glu Asp Val Thr Thr His Phe Ser Thr Ala Gly Glu His Asp Asp Ser Ser Ala Tyr Asp Ser Ser Ala Tyr Asp Ser Thr His Asp Asp Ser As			T	λ 1 -	C ~ ~	•	7 ~~	N a m	7 a n	7 ~~		Wa I	т1.	Шттт	Cln		Cln	
233 Val Val Glu Asp Val Thr Thr His Phe Ser Thr Ala Gly Gly Ile Ser 234		Pile	гур	нта		ьеu	AIG	АБР	ASII		1111	val	116	TYL		GIY	GIII	
234 35		**- 1	**- 7	~1		77- 7	m1	m\	TT 2 -		C	m\	37-	G1		71.	0	
237 Gln Val Ala Glu Ile Tyr Glu Gln Phe Ser Gly Glu His Asp Asp So So So So So So So S		vaı	vaı		Asp	vaı	rnr	Thr		Pne	Ser	Thr	Ата		GIY	ire	Ser	
238							_				_,	_				_	_	
The color of the		GIn		Ala	Glu	IIe	Tyr		Glu	GIn	Phe	Ser	-	GLu	His	Asp	Asp	
242 65										_								
245 Met Pro Arg Ass Lys Glu Asp Leu Ala Ser Arg Arg Arg Ala Ile 95 249 Met Tyr Val Ser Gln Lys Thr Try Gly Thr His Cys Arg Ass Leu Asp 120 110 120 110 120			Leu	Thr	Tyr	Val	Arg	Pro	Asp	Gly	Tyr		Ala	Ser	Ser	Ala		
246 Wet Tyr Val Ser Gln Lys Thr For Cly Thr His Cys Arg Asn Leu Asp 250 100 100 105 105 110																		
249 Met Tyr Val Ser Gln Lys Thr Trp Gly Thr His Cys Arg Asn Leu Asp 250 100 100 105 105 105 110 100 253 Met Ile Ala Ser Phe Thr Val Gly Met Met Gly Tyr Leu Pro Thr Phe 254 115 115 120 125 160 160 160 160 160 160 160 160 160 160 160 160 160 160 160 160 170 175 160 160 160 175 175 160 160 160 175 175 160 160 175 175 160 160 175 175 <	245	Met	Pro	Pro	Arg	Asn	Lys	Glu	Asp	Leu	Ala	Ser	Arg	Arg	Arg	Ala	Ile	
100 100	246					85					90					95		
Met Ile Ala Ser Phe Thr Val Gly Met Met Gly Tyr Leu Pro Thr Phe 125	249	Met	Tyr	Val	Ser	Gln	Lys	Thr	Trp	Gly	Thr	His	Cys	Arg	Asn	Leu	Asp	
115	250				100					105					110			
257 Arg Lys Lys Cys Pro Glu Tyr Ala Glu Asn Ile Thr Glu Tyr His Asp 258 130 135 135 140 140 140 140 140 160	253	Met	Ile	Ala	Ser	Phe	Thr	Val	Gly	Met	Met	Gly	Tyr	Leu	Pro	Thr	Phe	
130	254			115					120					125				
130	257	Arq	Lys	Lys	Cys	Pro	Glu	Tyr	Ala	Glu	Asn	Ile	Thr	Glu	Tyr	His	Asp	
261 Tyr Ala Glu Arg Asn Ser Leu Tyr Leu Ser Glu Thr 11e Val Asp Pro 265 Gln Gly Tyr Arg Ala Arg Thr His Gly Thr Asp Leu Asn Leu Pro Pro Pro Pro 166 Tyr Tyr Arg Ala Arg Thr His Gly Thr Asp Leu Asn Leu Pro Pro Pro Pro 175 Tyr Tyr Ins		_		-	-										_		_	
150 145 150 150 155 150 150 155 160 160 165 165 170 170 175 160 175 160 165 170 170 175 180		Tvr		Glu	Arg	Asn	Ser		Tyr	Leu	Ser	Glu	Thr	Ile	Val	Asp	Pro	
265 Gln Gly Tyr Arg Ala Arg Thr His Gly Thr Asp Leu Asn Leu Pro Pro 165 170 175 266 Pro Asp Arg Ala Val Met Arg Ile Asn Lys Gln Asn Ala Glu Gly Ile 180 180 185 190 273 Trp Ile Ser Gly Val Lys Gly Val Gly Thr Ala Ala Pro Gln Ser Asn 195 200 205 277 Glu Ile Phe Val Gly Ser Leu Phe Pro Ala Ala Pro Glu Glu Glu Ser Phe 210 215 220 281 Trp Ala Tyr Val Pro Val Asp Ala Pro Gly Val Lys Ile Phe Cys Arg 230 235 240 285 Glu Ile Val Ser Gln Pro His Ala Ser Ala Tyr Asp His Pro Leu Ile 260 255 255 289 Ser Lys Gly Glu Glu Ala Glu Ala Glu Ala Glu Ala Glu Ala Asp Ala Pro 265 265 270 293 Ile Pro Arg Trp Arg Ile Met Ala Ala Asp Ala Asp Val Pro Glu Leu Ala Ser 270 297 Ala Gly Phe Phe Phe Ser Leu Trp Thr Ser Tyr Ser His Trp Tyr Thr Leu 298 290 295 301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 315					_				-							_		
266 Fro Asp Arg Ala Val Met Arg Ile Asn Lys Gln Asn Ala Gly Ile 270 Fro Asp Arg Ala Val Met Arg Ile Asn Lys Gln Asn Ala Glu Gly Ile 273 Trp Ile Ser Gly Val Lys Gly Trp Ala Ala Pro Gln Ser Asn 274 Fro Ile Pro Ile Ser Gly Val Ala Ala Pro Gln Ser Asn 274 Fro Ile Pro Val Ala Ala Pro Glu Ala Pro Glu Ser Asn Pro Asn Pro Asn Pro Asn Pro Asn Pro Asn Pro Asn Pro Asn P			Glv	Tvr	Ara	Ala	Ara	Thr	His	Glv	Thr	Asp	Leu	Asn	Leu	Pro	Pro	
269 Pro Asp Arg Ala Val Met Arg Ile Asn Lys Gln Asn Ala Glu Ile 270 Trp Ile Ser Gly Val Lys Gly Val Gly Thr Ala Ala Pro Gln Ser Asn 274 195 195 200 200 205 205 305 480 277 Glu Ile Phe Val Gly Ser Leu Phe Pro Ala Ala Pro Glu Gly Ser Phe 278 210 210 210 215 220 220 220 220 240 281 Trp Ala Spr Ala Pro Gly Val Asp Ala Pro Gly Phe Cys Arg 282 225 235 240 Asp Asp Ala Met Val Tyr Asp His Pro Leu Ile Asp I		01	0-1	-1-	5		5			1								
270 180 185 190 273 Trp Ile Ser Gly Val Lys Gly Val Gly Thr Ala Ala Pro Gln Ser Asn 274 195 200 205 277 Glu Ile Phe Val Gly Ser Leu Phe Pro Ala Ala Pro Glu Glu Glu Ser Phe 278 210 215 220 281 Trp Ala Tyr Val Pro Val Asp Ala Pro Gly Val Lys Ile Phe Cys Arg 282 225 230 230 285 Glu Ile Val Ser Gln Pro His Ala Ser Ala Tyr Asp His Pro Leu Ile 286 245 245 289 Ser Lys Gly Glu Glu Glu Ala Glu Ala Met Val Val Phe Asp Asn Val Phe 290 260 265 293 11e Pro Arg Trp Arg Ile Met Ala Ala Asn Val Pro Glu Leu Ala Ser 294 275 280 297 Ala Gly Phe Phe Ser Leu Trp Thr Ser Tyr Ser His Trp Tyr Thr Leu 298 290 301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 302 305		Pro	Δsn	Δrσ	Δla		Met	Arα	Tle	Asn		Gln	Asn	Ala	Glu		Tle	
273 Trp Ile Ser Gly Val Lys Gly Val Gly Thr Ala Ala Pro Gln Ser Asn 274 195 195 200 200 205 205 9 277 Glu Ile Phe Val Gly Phe Pro Ala Ala Pro Glu Glu Glu Ser Phe 278 210 210 215 215 220 220 220 220 220 220 240 220 240 220 240 220 240 220 240 220 240 220 240 220 240 220 220 240 220								5			-7-					1		
274	_	Trn	Tle	Ser		Val	T.vc	Glv	٧al		Thr	Δla	Δla	Pro		Ser	Asn	
277 Glu Ile Phe Val Gly Ser Leu Phe Pro Ala Ala Pro Glu Glu Ser Phe 278		111	110		O ₁	vui	цуз	011		017	T 111	1114	1114		01	001		
278 210 215 220 281 Trp Ala Tyr Val Pro Val Pro Val Asp Ala Pro Gly Val Lys Ile Phe Cys Arg 282 225 230 230 235 240 285 Glu Ile Val Ser Gln Pro His Ala Ser Ala Tyr Asp His Pro Leu Ile 240 286 245 245 250 255 289 Ser Lys Gly Glu Glu Glu Ala Glu Ala Glu Ala Met Val Val Phe Asp Asn Val Phe 290 270 293 Ile Pro Arg Trp Arg Ile Met Ala Ala Asn Val Pro Glu Leu Ala Ser 285 294 275 285 280 285 297 Ala Gly Phe Phe Ser Leu Trp Thr Ser Tyr Ser His Trp Tyr Thr Leu 298 290 290 295 300 301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 302 305 310		C1	Tlo		W-1	C1 **	202	Tou		Dro	λl n	λla	Dro		Clu	Sar	Dho	
281 Trp Ala Tyr Val Pro Val Asp Ala Pro Gly Val Lys Ile Phe Cys Arg 282 225		GIU		File	val	GIY	261		FIIE	PIO	ніа	MIA		Giu	Giu	261	FIIC	
282 225		m		m	**- 1	D	17- 1		31-	D	61.	17- 1		т1 -	Dha	G	3	
285 Glu Ile Val Ser Gln Pro His Ala Ser Ala Tyr Asp His Pro Leu Ile 286		_	Ата	Tyr	vaı	Pro		ASP	АТа	Pro	GIA		гаг	me	Pne	Cys		
286					_					_			_			- .		
289 Ser Lys Gly Glu Glu Ala Glu Ala Met Val Val Phe Asp Asn Val Phe 290		GIU	ше	vaı	ser		Pro	HIS	Ата	Ser		Tyr	Asp	HIS	Pro		iie	
290				_	_		_	_	_									
293 Ile Pro Arg Trp Arg Ile Met Ala Ala Asn Val Pro Glu Leu Ala Ser 294 275 280 280 285 297 Ala Gly Phe Phe Ser Leu Trp Thr Ser Tyr Ser His Trp Tyr Thr Leu 298 290 295 295 300		Ser	Lys	Gly		Glu	Ala	Glu	Ala		Val	Val	Phe	Asp			Phe	
294 275 280 285 297 Ala Gly Phe Phe Ser Leu Trp Thr Ser Tyr Ser His Trp Tyr Thr Leu 298 290 295 300 301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 302 305 310 310 310 310 315 320																		
297 Ala Gly Phe Phe Ser Leu Trp Thr Ser Tyr Ser His Trp Tyr Thr Leu 298 290 295 300 . 301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 302 305 310 310 315 320		Ile	Pro	Arg	Trp	Arg	Ile	Met		Ala	Asn	Val	Pro		Leu	Ala	Ser	
298 290 295 300 · 301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 302 305 310 315 320																		
301 Val Arg Leu Glu Thr Lys Ala Asp Leu Tyr Ala Gly Leu Ala Lys Val 302 305 310 315 320		Ala	Gly	Phe	Phe	Ser	Leu	Trp	Thr	Ser	Tyr	Ser	His	Trp	Tyr	Thr	Leu	
302 305 310 315 320																•		
	301	Val	Arg	Leu	Glu	Thr	Lys	Ala	Asp	Leu	Tyr	Ala	Gly	Leu	Ala	Lys	Val	
305 Ile Met Glu Val Leu Gly Leu Glu Gly Ile Ala Val Val Arg Gln Arg																		
·	305	Ile	Met	Glu	Val	Leu	Gly	Leu	Glu	Gly	Ile	Ala	Val	Val	Arg	Gln	Arg	

RAW SEQUENCE LISTING DATE: 10/16/2001 PATENT APPLICATION: US/09/965,175 TIME: 15:38:11

Input Set : A:\PhzO.ST25.txt.

```
306
                   325
                                       330
309 Val Ser Glu Ile Val Gln Leu Ala Glu Ile Leu Lys Gly Met Cys Ile
310 340
                                   345
313 Ala Ser Ile Glu Thr Ala Glu Met Ser Asp Gly Asp Ile Leu Leu Pro
314 355
                               360
                                                   365
317 Gly His Asn Ala Leu Ala Ala Gly Arg Val Phe Ala Met Glu Lys Leu
                           375
321 Pro Arg Val Leu His Leu Leu Arg Glu Leu Cys Gly Gln Gly Leu Ile
                       390
325 Leu Arg Phe Asn Glu Lys Asp Leu Ala Ala Asp Ala Ala Phe Gly Gln
                   405
                                       410
329 Lys Phe Ser Trp Phe Leu Asp Thr Gln Ser Val Gly Ala Arg Glu Lys
    420
                                  425
333 Asn Leu Leu Met Asn Leu Val Trp Asp Val Ala Ala Ser Glu His Ser
334 435
                              440
337 Thr Arg Ala Leu Val Phe Glu Glu Gln His Ala Leu Ser Glu Pro Leu
    450
                           455
                                               460
341 Leu Arg Asp Asn Leu Val Leu Asp Tyr Asp Tyr Arg Glu Ser Thr Ser
                       470
                                           475
345 Leu Ile Arg Arg Leu Val Gly Leu Asn Ala Lys
                   485
349 <210> SEQ ID NO: 3
350 <211> LENGTH: 20
351 <212> TYPE: DNA
352 <213> ORGANISM: artificial sequence
354 <220> FEATURE:
355 <223> OTHER INFORMATION: primer PCA2a
357 <400> SEQUENCE: 3
358 ttgccaagcc tcgctccaac
                                                                         20
361 <210> SEQ ID NO: 4
362 <211> LENGTH: 20
363 <212> TYPE: DNA
364 <213> ORGANISM: artificial sequence
366 <220> FEATURE:
367 <223> OTHER INFORMATION: primer PCA3b
369 <400> SEQUENCE: 4
370 ccgcgttgtt cctcgttcat
                                                                         20
373 <210> SEQ ID NO: 5
374 <211> LENGTH: 21
375 <212> TYPE: DNA
376 <213> ORGANISM: artificial sequence
378 <220> FEATURE:
379 <223> OTHER INFORMATION: primer 30-84XBA
381 <400> SEQUENCE: 5
                                                                         21
382 aagtccagat gcgaaagaac g
385 <210> SEQ ID NO: 6
386 <211> LENGTH: 21
387 <212> TYPE: DNA
388 <213> ORGANISM: artificial sequence
```

VERIFICATION SUMMARY DATE: 10/16/2001 PATENT APPLICATION: US/09/965,175 TIME: 15:38:12

Input Set : A:\PhzO.ST25.txt

Output Set: N:\CRF3\10162001\1965175.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date